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IS 1388-3 (2005): Laboratory Glassware - Bottles, Part 3: Aspirator Bottles [CHD 10: Glassware]

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प्रयोगशाला में प्रयुक्त काँच का सामान — बोतलें

भाग 3 चूषित्र बोतलें

(दूसरा पुनरीक्षण)

Indian Standard

LABORATORY GLASSWARE — BOTTLES

PART 3 ASPIRATOR BOTTLES

(Second Revision)

ICS 71.040.20

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

June 2005 **Price Group 3**

NATIONAL FOREWORD

This Indian Standard (Part 3) (Second Revision) which is identical with ISO 4796-3 : 2000 'Laboratory glassware — Bottles — Part 3 : Aspirator bottles' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendations of the Glass, Glassware and Laboratoryware Sectional Committee and approval of the Chemical Division Council.

IS 1388 : 1993 'Reagent bottles (*first revision*)' was first published in1959 and revised in 1993. During second revision, the Committee felt that it would be more convenient to split the standard into three parts by adoption of ISO 4796-1 : 2000, ISO 4796-2 : 2000 and ISO 4796-3 : 2000 on dual number basis. Part 1 covered Screw-neck bottles, Part 2 covered Conical neck bottles and Part 3 covered Aspirator bottles.

The text of this ISO Standard has been proposed to be approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

BIS Certification Marking clause is given in National Annex A.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their places are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 383 : 1976 Laboratory glassware — Interchangeable conical ground joints	IS 5165 : 1969 Interchangeable conical ground-glass joints	Equivalent
ISO 4796-1 : 2000 Laboratory glassware — Bottles — Part 1 : Screw-neck bottles	IS 1388 (Part 1) : 2005 Laboratory glassware — Bottles: Part 1 Screw-neck bottles	Identical
ISO 4796-2 : 2000 Laboratory glassware — Bottles — Part 2 : Conical neck bottles	IS 1388 (Part 2) : 2005 Laboratory glassware — Bottles: Part 2 Conical neck bottles	do

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard
LABORATORY GLASSWARE — BOTTLES
PART 3 ASPIRATOR BOTTLES
(Second Revision)

1 Scope

This part of ISO 4796 specifies a series of aspirator bottles with a screw neck or with a conical neck suitable for the delivery of liquid chemicals and reagents in general laboratory use.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 4796. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 4796 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 383:1976, *Laboratory glassware — Interchangeable conical ground joints.*

ISO 4796-1:2000, *Laboratory glassware — Bottles — Part 1: Screw-neck bottles.*

ISO 4796-2:2000, *Laboratory glassware — Bottles — Part 2: Conical neck bottles.*

3 Types and capacities

3.1 There are three types of aspirator bottles specified in this part of ISO 4796:

— type ASN: aspirator bottles with a screw neck;

— type ACS: aspirator bottles with a conical neck socket;

— type ACJ: aspirator bottles with an interchangeable conical ground joint.

3.2 The nominal capacities of aspirator bottles shall be chosen from the following series:

0,5 l — 1 l — 2 l — 5 l — 10 l and 20 l

3.3 The nominal capacity of an aspirator bottle indicates the quantity of liquid which a bottle of average wall thickness shall contain when the bottle is filled to the turn of the shoulder.

3.4 The design of the bottle shall be such that the total capacity to the base of the neck shall be approximately 15 % greater than that to the shoulder.

4 Dimensions

The dimensions and tolerances of aspirator bottles are given in Figure 1 and in Tables 1 and 2 below.

Table 1 — Dimensions of aspirator bottles with a screw neck

Nominal capacity l	**Total height** h_1 mm approx.	**Height to shoulder** h_2 mm approx.	**Outside diameter** d mm approx.	**Wall thickness** s mm min.
1	225	153	100	2,0
2	260	170	136	2,0
5	330	208	181	2,0
10	410	265	227	2,7
20	505	330	288	3,0

Table 2 — Dimensions of aspirator bottles with a conical neck

Nominal capacity l	**Total height** h_1 mm approx.	**Outside diameter** d mm approx.	**Wall thickness** s mm min.	**Neck socket** [a]	**Ground joint at outlet**
0,5	162	86	1,3	24/29	19/26
1	198	107	1,7	29/32	19/26
2	246	133	2,0	29/32	19/26
5	318	181	2,0	45/40	29/32
10	398	227	2,7	60/46	29/32
20	492	288	3,0	60/46	29/32

[a] Or ground joint in accordance with ISO 383 (see 5.2.8 for details)

5 Construction

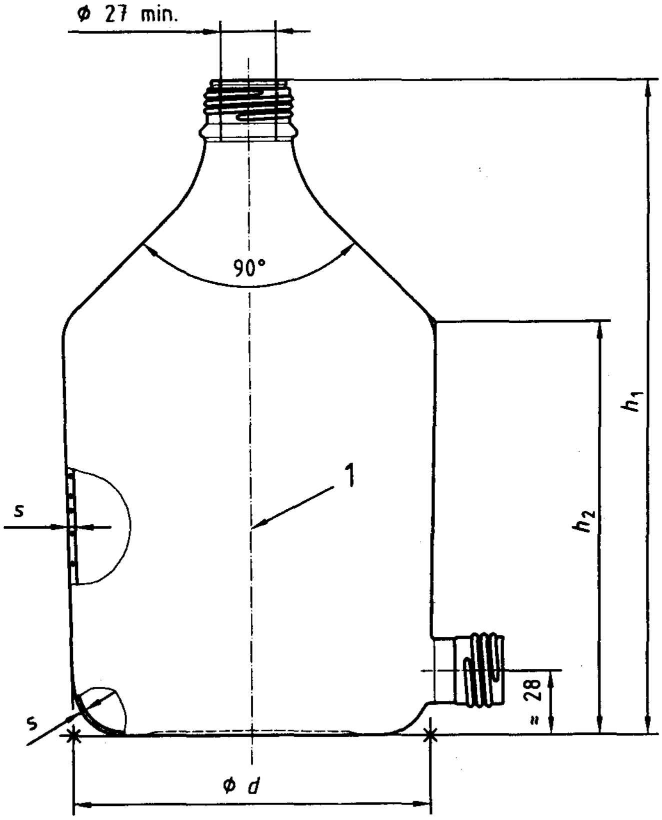
5.1 Material

In accordance with 5.1 of ISO 4796-1:2000.

5.2 Design

5.2.1 The base of the bottle shall be constructed so as to enable the bottle to stand firmly on a flat surface without rocking or spinning.

Dimensions in millimetres



Key

1 Taper 1:30

Figure 1 — Example of an aspirator bottle

5.2.2 The base of the bottle shall have a suitable radius in order to provide a smooth transition between the base and the side. The main portion of the side shall be slightly tapered with the smaller diameter at the base of the bottle.

The diameter d and the heights h_1 and h_2 shall be as given in Tables 1 and 2.

5.2.3 The shoulder of the bottle shall have a suitable radius so as to provide a smooth transition between the side and the conical upper proportion of the bottle.

5.2.4 The upper portion of the shoulder shall be of conical shape. The transition radius from the shoulder to the neck shall be as small as possible to be compatible with good manufacturing practice.

5.2.5 The bottle shall be blown so as to evenly distribute the glass in the mould avoiding sudden changes in the wall thickness. The thinnest areas shall not have a thickness less than the minimum values specified in Table 1.

5.2.6 The neck of the bottle shall be stoutly constructed and finished with a strengthening lip designed to facilitate pouring without liquid running down the outside of the bottle. A clip-on anti-drip ring of plastics material fitting into a slightly recessed channel on the outside of the neck is permitted as an alternative for aspirator bottles with a screw neck.

NOTE There are suitable national standards for the dimensions and design of the thread of the screw neck.

5.2.7 The outer glass surface of the bottles may be coated with a suitable plastics material for protection and to limit leakage of a liquid if the bottle is damaged. The coating shall be resistant to steam sterilization at 135 °C.

5.2.8 The internal surface of the conical neck socket shall be smooth, suitable to fit with a rubber stopper, or shall be finished by fine grinding. If the surface is finished, the grinding shall comply with the interchangeable conical ground joints specified in ISO 383 and dimensions specified in Table 2 of this part of ISO 4796. If the socket surface is smooth, the socket dimensions shall be suited for finishing by fine grinding so as to fit an interchangeable conical ground joint specified in Table 1.

5.2.9 The outlet in the side wall of the bottle shall have a distance of approximately 28 mm (see Figure 1) from the bottom. The outlet shall be supplied with an interchangeable ground joint, size 19/26 or 29/32 in accordance with ISO 383, or with an external screw thread, complying with suitable national or International Standards.

5.3 Closure for aspirator bottles with a screw neck

In accordance with 5.3 of ISO 4796-1:2000.

5.4 Stoppers for aspirator bottles with a conical neck

In accordance with 5.3 of ISO 4796-2:2000.

6 Designation

If a designation of bottles is required, this shall be by reference to this part of ISO 4796, i.e. ISO 4796-3, together with the nominal capacity of the bottle and the type specified in 3.1.

EXAMPLE For a bottle with a nominal capacity of 2 l and of type ACS (aspirator bottle with a conical neck socket), the designation would be as follows:

Laboratory bottle ISO 4796-3 - 2 ACS

7 Marking

In accordance with clause 7 of ISO 4796-1:2000.

NATIONAL ANNEX A

(*National Foreword*)

A-1 BIS CERTIFICATION MARKING

The product may also be marked with the Standard Mark.

A-1.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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